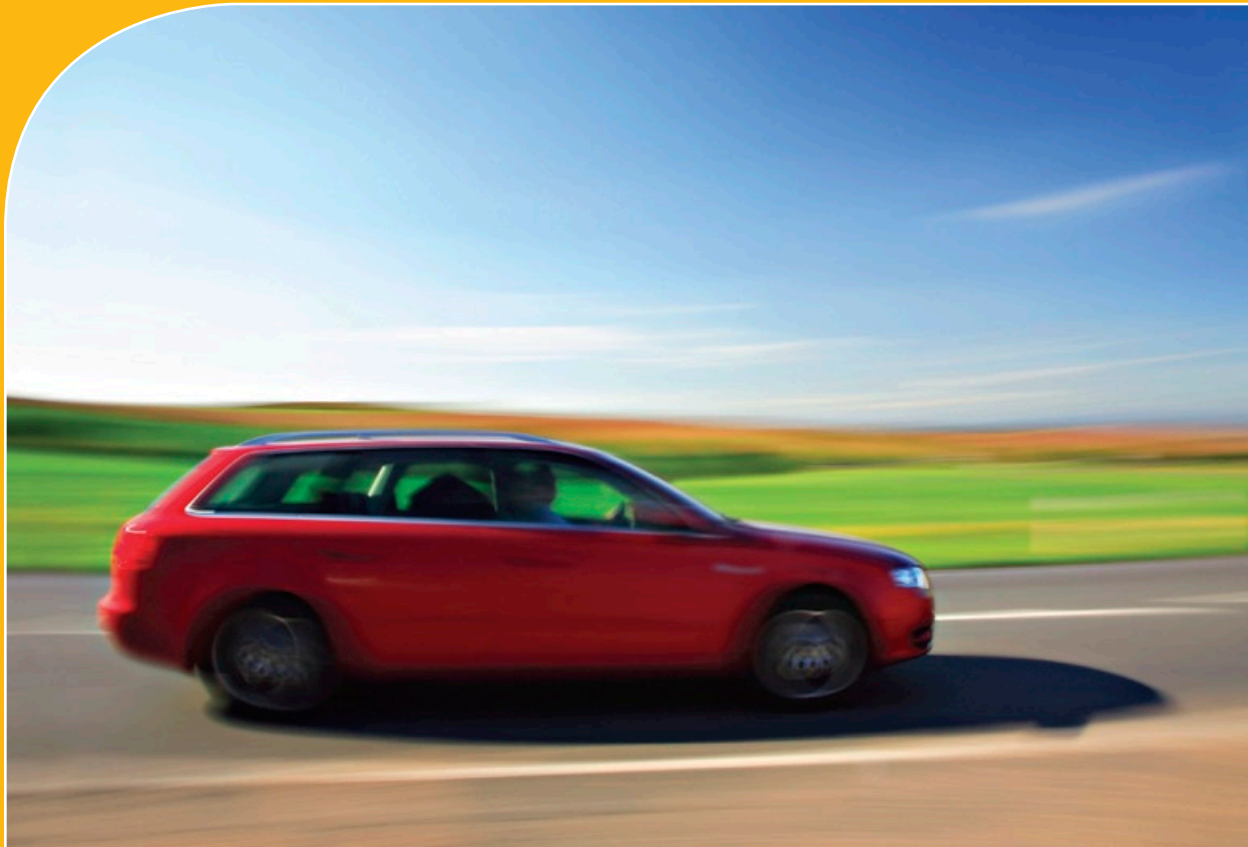
BOEMO ENGINEERING
AUTOGAS SYSTEMS

Owner Operation Manual

LPG Vehicle Service Book - Standard Systems



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5/25 Jersey Road
Bayswater, Vic 3153
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245 Johnston Street,
Abbotsford, Vic 3067
Australia
T 03 9419 4100
F 03 9417 5971

E sales@boemo.com.au
www.boemo.com.au

Congratulations

on having BE Autogas System fitted to your vehicle

In developing this latest generation of BE Autogas Systems, the company has drawn upon many years of experience and automotive technology from around the world. This enables us to supply your vehicle with robust equipment of the highest quality & performance.

This owner service manual has been supplied to help you better understand your new state of the art BE Autogas System, which if maintained properly will give you many years of motoring with reduced running cost.

It is very important that you have the scheduled services as laid out in the rear of this manual carried out by a registered & approved service centre. Failure to do so may result in your warranty being void, your car not running smoothly or efficiently, reduced safety and or a reduction in the life of your equipment.

To locate your nearest approved centre please call 03 9419 4100.

Boemo Engineering Management

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Contents

Warranty Data

Please fill in all details listed below. Failure to do so may void warranty

Owner's Name:

Address:

Town/ Suburb: State: Post Code:

Make: Model: Type: Year:

Engine Type: Klm's: Reg No: Vin:

Date of Conversion: Kit Type: Kit No: Tank Serial No:

Dealer's Name:

Address:

Town/ Suburb: State: Post Code:

Service Manager Name: Phone:

Warranty Statement

Warranty on a New Car is 3 years or 100,000 kilometres

Warranty on a Used Car is 2 years or 50,000 kilometres

Your warranty consists of the replacement of faulty parts and labour related to the components in the Genuine Conversion Kit as supplied by Boemo Engineering Pty Ltd the company and fitted by a BE Autogas Dealer. You are advised that your warranty will be null and void if anyone other than a company approved BE Autogas Dealer works on the BE Autogas System. The company will not guarantee any component that has been tampered with for any reason by anyone unauthorised, nor will it cover any electronic component due to water or oil spill damage of any kind, or any connection or the like, of any added wires to the vehicle that may have caused an electric short or damage of any kind by such a connection. The company will not be responsible for damage or deterioration of any component due to any impurity of L.P. Gas, petrol, oil or additive that has been or not been used in the vehicle. No warranty is expressed or implied by the company for any other part or component of the vehicle other than that applying to the BE Autogas System, nor will it be liable for any wear to the engine or its components attributed to the use of L.P. Gas, petrol, oil or any additive of any type. The company shall not be responsible for or cover you for any costs in part or in full of any debt paid or not that you incur, these include but are not limited to towing fees, freight charges, taxi fares, work carried out without our written approval, incurred either before, during or after the warranty period.

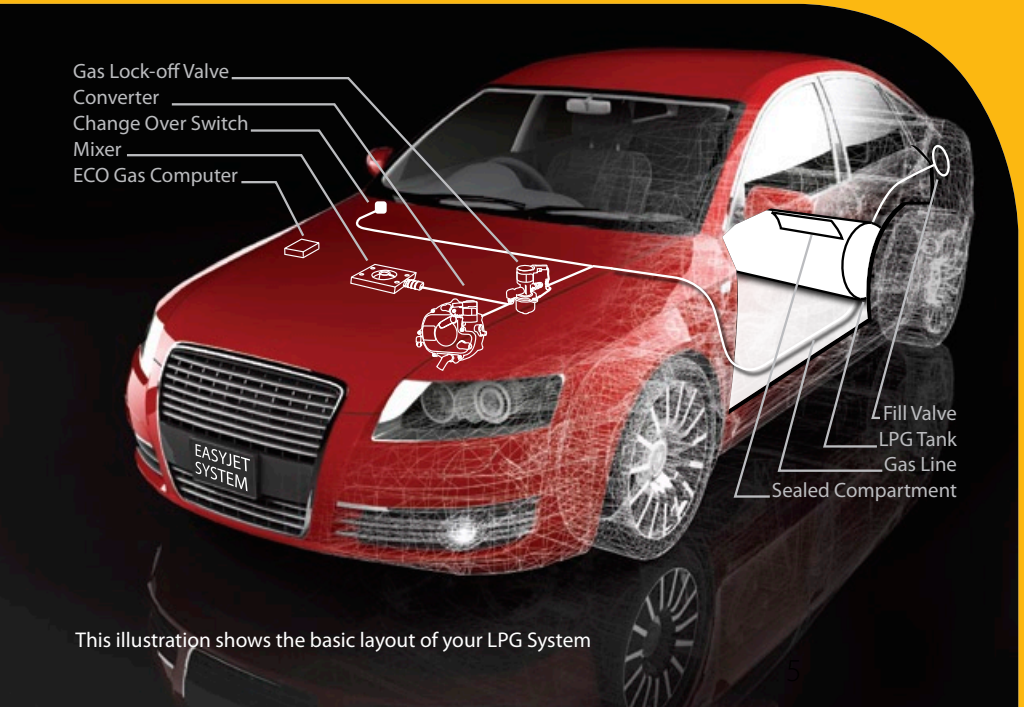
COMMONLY ASKED QUESTIONS

Q What is LPG?

A LPG (Liquified Petroleum Gas) is a mixture of Propane and Butane gases of varying percentages. Both are obtained as a result of refining oil or Natural gas.

Q Will I notice any loss of power?

A Under normal driving conditions you should not experience any loss in performance. The only time you may notice a slight reduction is under maximum acceleration.



This illustration shows the basic layout of your LPG System

Q What happens if I run out of LPG while I am driving?

A You will be able to change from one fuel to the other at any time, using an internal switch.

Q Will LPG effect my engine?

A No, LPG will not harm most engines. Providing you follow the service programme laid out in the rear of this booklet. LPG is a cleaner burning fuel and will actually reduce wear and tear on your engine.

Q Can I overfill the tank?

A No, because the LPG tank is fitted with an automatic shut off valve that will prevent over filling.

Q Will fitting LPG effect my insurance policy?

A No, LPG will not effect your insurance policy, but you are required to advise your insurance company that your vehicle now runs of LPG.

Change Over Switch

SWITCH SETTINGS FOR EFI VEHICLES

PLEASE NOTE: The look may vary according to the model of switch but the operation is still carried out the same way.

Switch in petrol position

Switch in off position

Switch in gas and Auto Change position

PLEASE NOTE: With the BE Autogas System fuel changes should be carried out while the EFI vehicle is traveling at a constant speed of at least 60 km per hour or greater.

Also please note never depress accelerator pedal when starting an EFI motor regardless of what fuel you are using.

SWITCH SETTINGS FOR CARBY VEHICLES

PLEASE NOTE: The look may vary according to the model of switch but the operation is still carried out the same way.

Switch in petrol position.

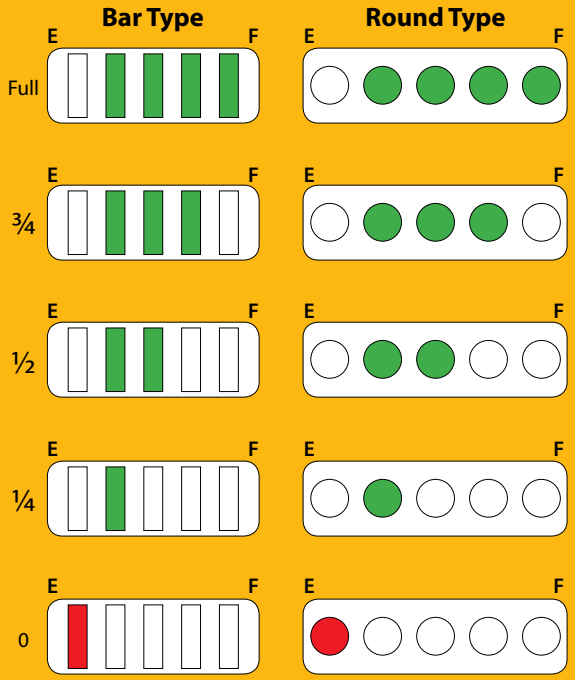
Switch in off position.

Switch in gas position.

With the BE Autogas System fuel changes should be carried out while the Carby vehicle is traveling at a constant speed of at least 60 km per hour or greater. When changing from petrol to gas the switch should be drained of fuel before switching to gas position. When changing from gas to petrol switch straight to the petrol position an do not pause in the centre position.

TYPICAL LED GAUGE INDICATIONS FOR LPG VEHICLES

PLEASE NOTE: The look may vary from time to time but the operation is still the same, be it round led type or a bar type.



Gauge with four green leds on indicates a full tank of fuel.

Gauge with three leds on indicates a ¾ tank of fuel.

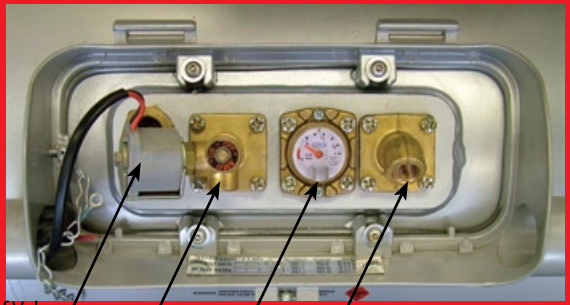
Gauge with two leds on indicates a ½ tank of fuel.

Gauge with one led on indicates a ¼ tank of fuel.

Gauge with single red led on indicates a reserve/empty tank of fuel.

PLEASE NOTE: When your gauge has one red led showing this indicates the reserved/empty level and it is advisable to fill your tank as soon as possible to avoid running out of LPG. Should you run out of LPG your vehicle can be driven on petrol until the LPG tank is refilled.

LPG Tank & Valves



Loosen Wingnut and remove lid from valve safety compartment to get your shut-off valve.

The fully sealed valve safety compartment on your LPG tank.

HOW TO FILL YOUR LPG TANK?

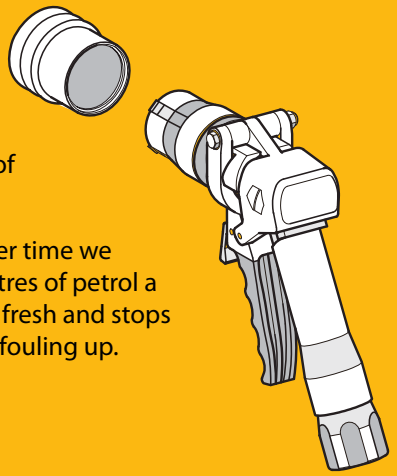
- First make sure the dispenser is on the side of your vehicle that makes it easy to connect.
- Turn your ignition switch OFF.
- Apply your hand brake.
- Do not smoke within 6 metres of the vehicle.
- Unscrew your filler valve cap.
- Connect filling nozzle and tighten only by hand.
- Pull handle back to start filling, check for any leaks.
- When the tank reaches 80% full the AFL valve will automatically shut off, you then release the handle to stop the gas flow. You may then remove the filling nozzle and replace it back on the bowser. (*A slight puff of gas will be released when removing the nozzle. Don't be alarmed, this is normal.*)
- Now replace your filler valve cap.

Caution:

Always follow the filling instructions and warnings that are displayed at the petrol station.

HOW TO FILL YOUR PETROL TANK?

The petrol tank should always be kept at least ¼ full at all times. This will avoid damage to the petrol pump. Remember to NEVER let the car run out of petrol.



As petrol may deteriorate over time we recommend use at least 10 litres of petrol a month. This keeps the petrol fresh and stops your carburettor or injectors fouling up.

Emergency Procedures

WHAT SHOULD I DO?

If there is a strong smell of LPG?

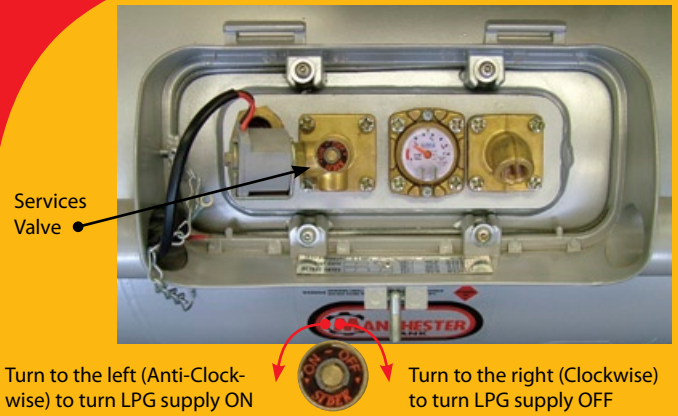
1. Turn off your engine.
2. Open your boot and/or bonnet manually.
3. Close the services valve on the LPG tank.
4. Check that there is nothing that may ignite the gas either in or around the vehicle.
5. Allow time for the LPG to desperse (rember that LPG is heavier than air and will lay in the lowest part of the boot).
6. When the smell of LPG has disappeared the vehicle may be restarted on petrol only and driven to your nearest approved installer.
7. Remember never garage the vehicle until it has been repaired.

If there is an accident?

1. Turn off the engine and all electrics.
2. Go to the LPG tank and close the LPG service valve.
3. Check that there are no fires or sparks etc.
4. If driveable do not use the LPG until an approved installer has thoroughly checked it over.

If there is a fire?

1. If the situation is at all dangerous clear yourself and everybody else near the vehicle well away. Otherwise try some of these other procedures.
2. If at all possible, close the LPG Service valve on the tank.
3. If you have an extinguisher, try to put out any fires.
4. If not or you are unable to do so, call the Fire Brigade and/or Police.



FREE SERVICE

After approximately 1,500 kms it is necessary for you to return your vehicle to the installation centre for a safety check and tuning of the gas system. This service is carried out free of charge unless any other part not belonging to the gas system is found to be defective and needs to be replaced. In this case, you will either be directed back to the dealer you purchased the vehicle from or if possible your LPG installer can replace the specified part at a cost.

PROGRAMMED MAINTENANCE

Regular maintenance by a qualified technician will ensure efficient operation of your LPG system. After the first free service it is important to follow the indicated maintenance program irrespective of your location in Australia.

By following the program you are assured of good operation of your vehicle and you will maintain your warranty for either 2 or 3 years as stated.

Please remember your authorised dealer has to stamp the coupon after each service or your warranty will be void.

GENERAL INFORMATION

This chapter lists all the basic recommendations for the LPG maintenance on your vehicle.

We suggest that your maintenance services are carried out regularly in order to keep your vehicle running efficiently.

If you are unsure about the maintenance schedule, please contact an authorised installer or phone 03 9419 4100 so that you can be advised properly.

To locate your nearest approved service centre please call Head Office 03 9419 4100, Sales Office 03 9720 0056.

Authorised Installer

1,500 km Free Service

No Charge to Customer

km's _____ Service No _____

- ☐ Check complete installation
- ☐ Check LPG converter
- ☐ Check spark plugs, leads and air filter
- ☐ Check fuel settings
- ☐ Check radiator fluid level and density
- ☐ Check switch operation and road test
- ☐ Check and replace maintenance sticker

Date _____ Signature _____

Name of service person

Company Stamp or Details

15,000 km Service

Charge to Customer

km's _____ Service No _____

- ☐ Check complete installation
- ☐ Check LPG converter
- ☐ Check spark plugs, leads and air filter
- ☐ Check fuel settings
- ☐ Check radiator fluid level and density
- ☐ Check switch operation and road test
- ☐ Check and replace maintenance sticker

Date _____ Signature _____

Name of service person

Company Stamp or Details

30,000 km Service

Charge to Customer

km's _____ Service No _____

- ☐ Check complete installation
- ☐ Check LPG converter
- ☐ Check spark plugs, leads and air filter
- ☐ Check fuel settings
- ☐ Check radiator fluid level and density
- ☐ Check switch operation and road test
- ☐ Check and replace maintenance sticker

Date _____ Signature _____

Name of service person

Company Stamp or Details

45,000 km Service

Charge to Customer

km's _____ Service No _____

- ☐ Check complete installation
- ☐ Replace LPG converter
- ☐ Check spark plugs, leads and air filter
- ☐ Check fuel settings
- ☐ Check radiator fluid level and density
- ☐ Check switch operation and road test
- ☐ Check and replace maintenance sticker

Date _____ Signature _____

Name of service person

Company Stamp or Details

60,000 km Service

Charge to Customer

km's _____ Service No _____

- ☐ Check complete installation
- ☐ Check LPG converter
- ☐ Check spark plugs, leads and air filter
- ☐ Check fuel settings
- ☐ Check radiator fluid level and density
- ☐ Check switch operation and road test
- ☐ Check and replace maintenance sticker

Date _____ Signature _____

Name of service person

Company Stamp or Details

75,000 km Service

Charge to Customer

km's _____ Service No _____

- ☐ Check complete installation
- ☐ Check LPG converter
- ☐ Check spark plugs, leads and air filter
- ☐ Check fuel settings
- ☐ Check radiator fluid level and density
- ☐ Check switch operation and road test
- ☐ Check and replace maintenance sticker

Date _____ Signature _____

Name of service person

Company Stamp or Details

90,000 km Service

Charge to Customer

km's _____ Service No _____

- ☐ Check complete installation
- ☐ Check LPG converter
- ☐ Check spark plugs, leads and air filter
- ☐ Check fuel settings
- ☐ Check radiator fluid level and density
- ☐ Check switch operation and road test
- ☐ Check and replace maintenance sticker

Date _____ Signature _____

Name of service person

Company Stamp or Details

105,000 km Service

Charge to Customer

km's _____ Service No _____

- ☐ Check complete installation
- ☐ Check LPG converter
- ☐ Check spark plugs, leads and air filter
- ☐ Check fuel settings
- ☐ Check radiator fluid level and density
- ☐ Check switch operation and road test
- ☐ Check and replace maintenance sticker

Date _____ Signature _____

Name of service person

Company Stamp or Details

120,000 km Service

Charge to Customer

km's _____ Service No _____

- ☐ Check complete installation
- ☐ Check LPG converter
- ☐ Check spark plugs, leads and air filter
- ☐ Check fuel settings
- ☐ Check radiator fluid level and density
- ☐ Check switch operation and road test
- ☐ Check and replace maintenance sticker

Date _____ Signature _____

Name of service person

Company Stamp or Details

135,000 km Service

Charge to Customer

km's _____ Service No _____

- ☐ Check complete installation
- ☐ Check LPG converter
- ☐ Check spark plugs, leads and air filter
- ☐ Check fuel settings
- ☐ Check radiator fluid level and density
- ☐ Check switch operation and road test
- ☐ Check and replace maintenance sticker

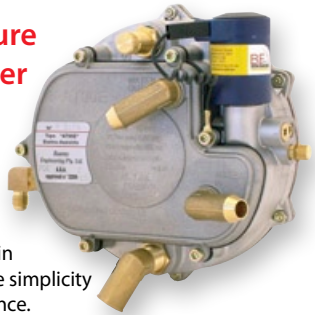
Date _____ Signature _____

Name of service person

Company Stamp or Details

BE Standard Gas Systems

BRC AT90E Pressure Reducer/Converter



The BRC AT9OE is a stage regulator, designed and manufactured in Italy and modified by Boemo Engineering to suit Australian vehicles. The main features of the regulator are simplicity of operation and maintenance.

The unit is fitted with two adjusting screws, one for stability (can be set to suit individual engines), the second for forced idle bleed adjustments. A Solenoid shut-off valve when energised will open a passage way from the first stage to the second stage chamber so that the LPG vapour can be drawn to the engine on demand. As a safety unit the valve will shut down when the ignition is turned off, or when the vehicle is operating on petrol, stopping any LPG escaping to the vapour outlet. Gas output of the regulator 28Kg/hour.

BRC ET98 Gas Lock Off

Consists of a main pressure unit which is opened and closed by means of a piston actuated solenoid unit. A filler bowl is connected to the base of the pressure by a sealed bolt. The gas passes through a corrugated paper filer element before passing through the main pressure unit and to the pressure reducer. The lock-off valve ensures total safety by stopping the flow of liquid gas any time the vehicle is not operating in LPG mode.

DEG104 Lambda Control Unit

The Lambda Control System has been designed and manufactured using the latest technology. The DEG104 consists of an emulation setting control, a computer control unit and a fast acting linear actuator (step motor). The actuator is controlled by a microprocessor. The input parameter (Lambda Sensor Signal and Throttle Position Sensor) are controlled by an 8 bit microprocessor which constantly compares these parameters with data stored and then generates the impulses for controlling the step motor. In this way the fuel is regulated for the best engine performance at any given instant.

DCM 233 Change Over Switch

The Change Over Switch DCM 233 is equipped with a two positions switch. It allows for the following features:
1- Gas fuel position.
2- Petrol Fuel Position.
3- Emergency.
4- Display of LPG level in the tank (only when connected to an optional sender). The Change Over Switch DCM 233 is also equipped with a safety car feature, which provides to cut the gas flow to the regulator (hence to the engine) in case the engine accidentally dies out.

Your Authorised Conversion Dealer Details:

Dealer's Name:

Address:

Town/ Suburb: State: Post Code:

Phone: Fax: Emergency Contact Person: Phone:

A Leader In Automotive LPG Technology

BE
BOEMO ENGINEERING
AUTOGAS SYSTEMS

BRC
GAS EQUIPMENT

A Winning Combination

TAH1 1048